

Appl. No. 09/699,019
Resp. dated Feb. 7, 2006
In Reply to Office Action of Oct. 7, 2005

REMARKS

Claims 1-66 are pending in the present application. The Examiner has merely objected to claims 2-11, 14-19, 36-45 and 47-53. Claims 1, 12, 13, 20-35, 46 and 54-66 stand rejected under 35 U.S.C. § 103(a) as being obvious.

I. PATENTABLE SUBJECT MATTER

Applicants gratefully acknowledge the indication by the Examiner that claims 2-11, 14-19, 36-45 and 47-53 recite patentable subject matter. However, in view of the remarks below, it is believed that claims 2-11, 14-19, 36-45 and 47-53 are in condition for allowance.

II. STIKVOORT AND MARSHALL

Claims 1, 12, 13, 20-35, 46 and 54-66 stand rejected under 35 U.S.C. § 103(a) as being obvious over United States Patent No. 6,236,847 B1 ("Stikvoort") in view of United States Patent No. 4,723,318 ("Marshall"). Applicants respectfully traverse the rejection as set forth below.

In the section entitled "References Cannot Be Combined Where References Teaches Away from Their Combination", M.P.E.P. § 2146(X)(D)(2) states that "[i]t is improper to combine references where the references teach away from their combination". M.P.E.P. at page 2100-169 (Rev. 3, Aug. 2005)(case citation omitted).

Marshall teaches that polyphase filters should be active polyphase filters.

According to the present invention there is provided an active polyphase filter arrangement in which feedback is used to produce the desired filter frequency response.

In the present specification by an active polyphase filter is meant a filter which is implemented using amplifiers, for example operational amplifiers, to provide gain and to provide isolation between the impedances in different parts of the filter. The advantage of using active filter circuits is the ease of design of the filter and the circuit itself.

Marshall at col. 1, lines 35-45.

On the other hand, Stikvoort teaches away from active polyphase filters due to cost and stability considerations. For example, Stikvoort rejects the use of RF filters because they "can be

Appl. No. 09/699,019

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quite expensive". Stikvoort at col. 1, line 31. In addition, Stikvoort states that "[t]he object of the present invention is provide a receiver in which beside the image rejection also the adjacent channel selectivity is realized in a very cost effective way." Stikvoort at col. 1, lines 45-47. Furthermore, Stikvoort specifically promotes the use polyphase filters that are made up of passive filters.

A further embodiment of the invention is characterized in that the first polyphase filter and the second polyphase filter comprise passive filters.

The use of passive filters does not require active elements such like opamps, resulting in lower costs, and often in a more stable operation of the receiver.

A still further embodiment of the invention is characterized in that the first polyphase filter and the second polyphase filter comprise passive filters using capacitors and resistors.

Stikvoort at col. 2, lines 27-36. Furthermore, the attention of the Examiner is respectfully directed to FIG. 6 of Stikvoort in which a polyphase filter is illustrated as a passive filter.

Since Stikvoort and Marshall teach away from each other, Stikvoort and Marshall cannot be properly combined.

There are other examples in which Stikvoort and Marshall specifically teach away from each other.

For example, Stikvoort teaches a receiver 2 in which an input signal passes through frequency converters 5, 13, AGC amplifiers 12, 17, a low pass filter 14, coupling capacitors, 18, 20, 23, 25, a demodulator 21 and polyphase filters 16, 19 in a single pass without any feedback paths between the polyphase filters 16, 19. See, e.g., Stikvoort at FIG. 1.

On the other hand, Marshall is concerned with the "risk of an unbalance between the channels". Marshall at col. 1, line 28. Marshall solves the problem

[b]y using a suitably chosen second polyphase filter to form the feedback path of the first polyphase filter, the filter arrangement can be made generally insensitive to imbalance effects.

Marshall at col. 1, lines 46-49. Thus, Marshall requires a feedback path formed by a second polyphase filter to overcome the imbalance effects. Thus, Marshall teaches away from the configuration of polyphase filters 16, 19 in Stikvoort in which polyphase filter 19 does not form

Appl. No. 09/699,019
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a feedback path to polyphase filter 16. According to Marshall, the teachings of Stikvoort are susceptible to imbalance effects.

Since Stikvoort and Marshall teach away from each other, Stikvoort and Marshall cannot be properly combined.

Applicants respectfully submit that, contrary to the assertions of the Office Action, Stikvoort does not teach a notch filter in FIG. 1 of Stikvoort. Stikvoort discloses a filter arrangement characterized by a bandpass filter function. A bandpass filter is the opposite of a notch filter, which is a type of bandstop filter. Applicants respectfully submit that, in general, a bandpass filter is the opposite of a bandstop filter (e.g., a notch filter).

For support that Stikvoort describes a bandpass filter, Applicants respectfully draw the attention of the Examiner to line 10 of the Abstract of Stikvoort ("[i]n this way a band-pass transfer function is obtained"); col. 1, lines 59-60 of Stikvoort ("[b]y using these measures it becomes possible to obtain a receiver with an asymmetric band pass transfer function"); col. 2, line 1 of Stikvoort ("a band pass transfer function is obtained"); and col. 4, lines 19-20 ("[c]onsequently a bandpass characteristic is obtained").

Accordingly, Applicants respectfully submit that the Examiner withdraw arguments based on Stikvoort allegedly disclosing a notch filter. Stikvoort simply does not support such an allegation.

For at least the above reasons, it is respectfully submitted that a rejection based on the combination of Stikvoort and Marshall cannot be maintained.

It is respectfully requested that the rejection under 35 U.S.C. § 103(a) be withdrawn with respect to claims 1, 12, 13, 20-35, 46 and 54-66.

III. STIKVOORT AND RICH

Claims 20-25 stand rejected under 35 U.S.C. § 103(a) as being obvious over Stikvoort in view of United States Patent No. 5,307,517 ("Rich"). Applicants respectfully traverse the rejection as set forth below.

Claim 20 recites "a notch filter" that comprises "notching means for notching a particular frequency of the input signal as a function of the phases".

Appl. No. 09/699,019

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In the Office Action, the Examiner admits that Stikvoort does not teach at least the following elements: notching means for notching a particular frequency of the input signal as a function of the phases. Furthermore, as discussed above, Stikvoort does not teach a notch filter and, in particular, a notch filter that includes, for example, notching means for notching a particular frequency of the input signal as a function of the phases.

The Office Action rejects claims 20-25 based on an obviousness rejection that is based on modifying Stikvoort in view of the teachings of Rich.

In the section entitled "The Proposed Modification Cannot Change the Principle of Operation of a Reference", M.P.E.P. § 2143.01(VI) states that "[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious". M.P.E.P. at page 2100-138 (Rev. 3, Aug. 2005)(case citation omitted).

As the Examiner will now appreciate in view of the above discussions, Stikvoort does not disclose a notch filter, but instead uses a first polyphase filter 16 and a second polyphase filter 19 to obtain a receiver 2 with an asymmetric bandpass transfer function. See, e.g., col. 1, lines 29-67; col. 2, lines 1-2; and FIG. 1 of Stikvoort. A bandpass filter allows only the desired frequency range to pass through the two polyphase filters 16, 20 before being demodulated by the demodulator 21. Thus, for example, a communications signal at a particular frequency within the desired frequency range would pass through the two polyphase filters 16, 20 before being demodulated by the demodulator 21.

On the other hand, Rich discloses an adaptive notch filter for FM interference cancellation. See, e.g., the title of Rich ("Adaptive Notch Filter For FM Interference Cancellation"). The Examiner alleges that the teachings of Rich can be used to modify the invention of Stikvoort to produce a notch filter. However, the Examiner has failed to consider that Stikvoort needs a bandpass transfer function to operate as described in Stikvoort. If the bandpass filter of Stikvoort is allowed to be changed into a notch filter (recalling that a notch filter is a type of bandstop filter), then the receiver 2 of Stikvoort, which relies upon an asymmetric bandpass transfer function, would undeniably change the principle of operation of Stikvoort.

Appl. No. 09/699,019
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Applicants respectfully submit that, according to M.P.E.P. § 2143.01(VI), such a change in the principle of operation of Stikvoort is not allowed and, according to M.P.E.P. § 2143.01(VI), the teachings of Stikvoort and Rich are insufficient to render the claims *prima facie* obvious.

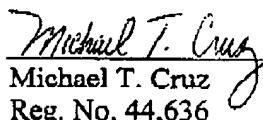
IV. CONCLUSION

In view of at least the foregoing, it is respectfully submitted that the pending claims 1-66 are in condition for allowance. Should anything remain in order to place the present application in condition for allowance, the Examiner is kindly invited to contact the undersigned at the below-listed telephone number.

The Commissioner is hereby authorized to charge additional fees or credit overpayments to the deposit account of McAndrews, Held & Malloy, Account No. 13-0017.

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Respectfully submitted,


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